

# Mineral Industry Surveys

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### PRECIOUS METALS IN DECEMBER 1999

U.S. mines produced 29,100 kilograms (kg) of gold and 183,000 kg of silver in December 1999. Compared with November, production of gold was up by 21% in California, and silver production was up by 24% in Arizona and up by 56% in Nevada.

### Gold

**Domestic.**—Metals Economics Group (MEG) reported that gold accounted for 50% of total worldwide nonferrous metals exploration expenditures reported in 1999. The United States, the third most important region for gold exploration, reported proportionately higher spending on gold, but in terms of actual dollars spent, budgets continued to fall. About 41% of the U.S. expenditures were directed at "minesite" targets, which are new gold resources within the vicinity of existing operations (Mining Journal, 2000b).

The Crown Jewel gold project, jointly owned by Crown Resources Corp. and Battle Mountain Gold Corp., received an unfavorable ruling on a water quality permit. The ruling, made by Washington State's Pollution Control Hearings Board, will delay the project's start-up date as the companies review their options (American Metal Market, 2000a).

International.—Gold recovery was increased by 20% by installing a pressure oxidation (POX) facility at the Macraes gold mine in New Zealand. The POX technology used at the Macraes gold mine was licensed from Newmont Gold Mining Company to treat ore with an average grade of 1.5 grams of gold per metric ton. Usually, POX technology is used for higher grade ores (Mining Journal, 2000c).

Germany's central bank, Deutsche Bundesbank, may issue a gold coin to mark the farewell of the traditional deutsche mark when the European countries switch over to the euro in 2001. The gold coin will weigh 11.85 grams and be priced at \$124.40. About 2 million gold coins are expected to be minted. Profits from the sale of the gold coins would go to a foundation for the promotion of public awareness for financial stability (American Metal Market,

The European Commission (EC) threatened to sue Italy over its law restricting the import of investment gold; the EC demanded that the country change the law within 2 months. Currently, Italian law gives Ufficio Cambi, a state body, the exclusive right to purchase gold abroad and to monitor gold transactions, while banning imports and marketing gold for purposes other than domestic industrial gold production. The EC said that restriction of gold imports for investment is illegal (American Metal Market, 2000c).

Update.—On January 11, the Amsterdam Exchanges will change their gold option contracts to a European-style contract, meaning that the contracts can only be exercised at the time of expiration rather than anytime during the life of the option. The new gold options are to be launched March 20 with a September expiration. The last of the old gold options will expire in August (American Metal Market, 2000b).

The Bank of England (BoE) sold another 25,000 kg of gold on January 25, at a London fixed price of \$289.50 per troy ounce. The auction price was the highest for all of the four BoE sales, and was 4.3 times oversubscribed. The first sale, completed on July 6, yielded \$261.20 per ounce of gold, and it was 5.2 times oversubscribed; the second, completed on September 21, yielded \$255.75 per ounce of gold, and it was 8 times oversubscribed; and the third, conducted on November 29, yielded \$293.50 per ounce of gold, and it was 2.1 times oversubscribed. Consequently, the outcome of the fourth auction was viewed as a neutral to mildly positive influence on gold prices. The next BoE auction is scheduled for March 21(Mining Journal, 2000a).

The takeover battle in South Africa for Randfontein Estates Ltd.

was resolved with the resignation of the CEO of JCI Gold Ltd., from the board of Western Areas Ltd. on January 17. The restructuring plans involved the consolidation of seven listed companies into Western Areas, renaming JCI Gold Ltd., and obtaining a listing on the Toronto Stock Exchange (Mining Journal, 2000d).

El Penon gold mine, owned by Meridian Gold of Reno, NV, opened in Chile. The mine is expected to produce about 8,000 kg of gold and more than 600 kg of silver this year at a cash cost of \$100 per ounce of gold. Mine life is expected to be 8 years. Doré will be shipped to Handy & Harman Refinery in Massachusetts (Platt's Metals Week, 2000).

#### Silver

The central People's Bank of China has issued a notice formally abolishing the State's silver monopoly. The notice, approved by the State Council, allows silver producers and buyers to directly trade at market set prices for the first time since the founding of the People's Republic of China in 1949. It specifies that government departments will begin preparing to list silver for trade on the country's commodities exchanges. The notice also states that the government will support and encourage domestic silver production enterprises to export silver, including silver coins, silver products, and national silver stockpiles. Silver imports will continue to be limited under a new set of regulations to be set by the People's Bank of China. State statistics show China's silver production has grown at about 9% annually over the 1983 to 1997 period. Production was 1,300 metric tons in 1998 (Platt's Metals Week, 1999b).

### **Platinum-Group Metals**

The price of palladium reached an all time high of \$451 per ounce on December 30, 1999, and continued to climb. The price rise was driven by increasing demand by automobile manufacturers in Japan and the United States and by problems associated with securing supplies from Russia. Consumers were also concerned that Norilsk Nickel, the world's largest producer of palladium, will

have difficulties delivering palladium to the global market despite being granted a 10-year quota for palladium exports in 1999 (Mining Journal, 1999).

Anglo American Corp., the world's largest platinum producer, announced plans to spend \$220 million on the development of a new 5,000-kilogram-per-year platinum mine near the town of Steelpoort in South Africa's Mpumalanga province. The project is located on the eastern limb of the Bushveld complex on the Maandagshoek, Driekop, Winterveld, and Onverwacht farms. The mine is expected to produce 200,000 tons per month of UG2 ore from two shafts. Work on the project is expected to begin in the first half of 2000, with production starting within 2 years of construction commencement. Full production is expected to be reached 1 year later (Platt's Metals Week, 1999a).

## **References Cited**

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TABLE 1 MINE PRODUCTION OF RECOVERABLE GOLD AND SILVER IN THE UNITED STATES, BY STATE 1/

# (Kilograms)

				Other	
Gold	Alaska	California	Nevada	States 2/	Total
1998:					
December	1,280	1,830	25,500	5,040	33,700
January-December	18,300	18,700	273,000	56,200	366,000
1999:					
January	1,250	1,340	21,400	4,050	28,100
February	1,130	1,170	20,700	3,720	26,800
March	1,250	1,440	20,900	4,300	27,900
April	1,810	1,440	21,400	4,350	29,000
May	1,840	1,460	21,700	4,180	29,100
June	1,810	1,520	22,600	4,270	30,200
July	1,900	1,420	20,100	4,360	27,800
August	1,900	1,350	21,100	4,300	28,600
September	1,860	1,370	21,300	4,250	28,700
October	1,360	1,530	20,400	4,310	27,600
November	1,360	1,500	20,300	4,330	27,500
December	1,260	1,810	21,400	4,580	29,100
January-December	18,700	17,300	253,000	51,000	340,000
				Other	
Silver	Arizona	Idaho	Nevada	States 3/	Total
1998:					
December	15,700	36,200	97,900	62,300	212,000
January-December	211,000	447,000	670,000	736,000	2,060,000
1999:					
January	15,400	34,100	48,100	63,000	161,000
February	14,700	30,800	49,000	55,200	150,000
March	17,600	34,100	67,100	59,900	179,000
April	16,500	34,100	46,000	69,600	166,000
May	16,800	35,200	42,400	65,700	160,000
June	16,200	34,100	48,100	67,600	166,000
July	16,600	35,200	36,700	68,500	157,000
August	14,300	35,200	36,600	64,700	151,000
September	13,600	34,500	44,600	63,200	156,000
October	13,100	34,500	45,800	62,300	156,000
November	11,900	34,500	46,300	59,800	152,000
December	14,700	34,500	72,400	61,900	183,000
January-December	181,000	411,000	583,000	761,000	1,940,000

<sup>1/</sup> Data are rounded to three significant digits; may not add to totals shown.

<sup>2/</sup> Includes Arizona, Colorado, Idaho, Montana, New Mexico, South Carolina, South Dakota, Utah, and Washington.
3/ Includes Alaska, California, Colorado, Missouri, Montana, New Mexico, New York, South Carolina, South Dakota, Tennessee, Utah, and Washington.

# TABLE 2 SELECTED PRECIOUS METAL PRICES

# (Dollars per troy ounce)

	Gold	Silver	Platinum	Palladium
Engelhard Industries:				
1998:				
Low/date	274.52 (August 28)	4.72 (August 31)	337.40 (October 30)	205.00 (January 6)
High/date	314.33 (April 24)	7.25 (February 6)	434.00 (April 14)	417.00 (May 18)
Average	295.24	5.54	374.61	289.76
1999:				
November:				
Low/date	289.39/8	5.07/8	417.00/2	395.00/2
High/date	298.66/24	5.30/23	457.00/16	420.00/11
Average	293.89	5.18	436.35	405.65
December:				
Low/date	277.22/6	5.12/2 and 6	434.00/20	401.00/1
High/date	292.04/29	5.40/30	450.00/14	456.00/29
Average	284.55	5.21	441.65	429.70
Year to date				
Low/date	253.88 (July 20)	4.91 (January 4, April 14,		
		May 28, and June 4)	344.00 (January 28)	293.00 (May 4)
High/date	326.70 (October 5)	5.75 (September 28)	457.00 (November 16)	456.00 (December 29)
Average	279.91	5.25	378.94	363.20
2000:				
January:				
Low/date	280.52/6	5.13/18	416.00/6	437.00/6
High/date	289.24/20	5.39/27	497.00/28 and 31	490.00/31
Average	285.45	5.23	443.30	457.65
Handy and Harman:				
1998:				
Average	294.12	5.53	XX	XX
1999:				
November	292.74	5.19	XX	XX
December	283.69	5.21	XX	XX
Average year to date	278.81	5.25	XX	XX
2000:				
January	284.26	5.23	XX	XX
London Final: 1/				
1998:				
Average	294.16	5.55	XX	XX
1999:				
November	293.18	5.16	XX	XX
December	283.07	5.16	XX	XX
Average year to date	278.77	5.22	XX	XX
2000:				
January	284.32	5.19	XX	XX
XX Not applicable				

XX Not applicable.

1/ Silver price reported as "London Spot/US Eq."

Source: Platt's Metals Week.

# $\label{eq:table 3} \text{U.S. IMPORTS AND EXPORTS OF GOLD 1/}$

(Kilograms of gold content, unless otherwise specified)

	Ores and	Doré and	Refined	Ash and		Waste and scrap	Metal powder	Gold compounds
Period and country	concentrates 2/	precipitates	bullion 3/	residues	Total 4/	(gross weight)	(gross weight)	(gross weight)
Imports for consumption:		PF				(8	(8	(82 222 11 22822)
1998	2,540	14,100	257,000	4,670	278,000	16,700	12,800	9,820
1999:	,	,	,	,	,	-,	,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
September	9	1,540	21,000	5	22,600	4,110	953	1,170
October	1	1,620	11,700	2	13,300	2,760	291	1,090
November:								
Argentina		188			188			
Austria			269		269			
Bolivia		22	2,160		2,180	4		
Brazil			2,750		2,750			
Canada		349	8,240	15	8,600	47	451	
Chile		232	450		682			
Colombia			727		727	137		1,310
Costa Rica			19		19	401		
Dominican Republic			28		28	650		
Honduras		68	113		181	(5/)		
Mexico		339	106	4	449	1,890	2	
Nicaragua		142	143	10	296			
Peru		573	1,110		1,680			
Switzerland			189		189			
United Kingdom		1,630	4,980		6,600		3	
Other	8	27	137		172	58	(5/)	22
Total	8	3,570	21,400	29	25,000	3,190	457	1,330
Year to date	110	21,400	184,000	132	206,000	24,700	5,310	8,180
Exports:								
1998	401	91,600	430,000		522,000	58,900	196	781,000
1999:								
September		7,250	101,000		108,000	3,590	13	23,000
October	1	9,200	26,000		35,200	5,070	7	9,710
November:								
Australia			7,780		7,780			
Belgium						58		
Canada		327	4,020		4,350	1,600	10	1,110
Columbia			4		4			4,970
Israel	(5/)		(5/)		1		6	22,000
Italy						133		
Japan						174		
Mexico			3,370		3,370		1	
Peru			629		629			
Singapore		2			2			418
Switzerland		7,340	52,100		59,500			
United Kingdom		245	29,100		29,300	2,240	4	
Other	9		137		146	106	4	64
Total	9	7,910	97,100		105,000	4,310	25	28,600
Year to date	116	77,500	367,000		445,000	32,800	224	537,000

<sup>1/</sup> Data are rounded to three significant digits; may not add to totals shown.

<sup>2/</sup> Includes gold content of base metal ores, concentrates, and matte imported for refining.

<sup>3/</sup> Bullion also moves in both directions between U.S. markets and foreign stocks on deposit in the Federal Reserve Bank. Monetary gold excluded.

<sup>4/ &</sup>quot;Waste and scrap," "Metal powder," and "Gold compounds" not included in "Total."

<sup>5/</sup> Less than 1/2 unit.

TABLE 4 U.S. IMPORTS AND EXPORTS OF SILVER, REFINED AND AS NITRATE 1/

# (Kilograms)

Period and country	Bullion (silver content)	Doré (silver content)	Total (silver content)	Other unwrought silver (gross weight)	Metal powder (gross weight)	Silver nitrate (gross weight)
Imports for consumption:	(* * * * * * * * * * * * * * * * * * *	(4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	(**************************************	8 8	8	8 4 4 4
1998	2,800,000	340,000	3,140,000	102,000	129,000	8,030
1999:		,	-,,,	,	,	2,020
September	198,000	11,300	210,000	2,300	8,920	300
October	210,000	18,500	229,000	3,290	7,970	42
November:		,		-,-,-	.,,,,,	· <del>-</del>
Canada	96,500		96,500	24,500		
Chile	2,250	11,700	14,000			
Colombia		149	149			
Dominican Republic	- 				90	
Germany	- -				312	
Japan	-				9,840	
Mexico	103,000	5,820	109.000	17	9,840 	
Panama	90	5,020	90			
Peru	10,000		10,000			
United Kingdom	2,420		2,420			
Other	38		38			
Total	214,000	17,700	232,000	24,500	10,200	
Year to date	2,450,000	393,000	2,840,000	123,000 2/	106,000	3,360
Exports:	_ 2,430,000	393,000	2,040,000	123,000 2/	100,000	3,300
1998	2,250,000	241,000	2,490,000	39,900	299,000	164,000
1998	_ 2,230,000	241,000	2,490,000	39,900	299,000	104,000
September	35,200	1,460	36,700	4.240	26,400	2,960
	_ 33,200	1,490		4,340	,	,
October November:	1,280	1,490	2,770	7,060	20,700	1,390
	- 242		242			
Australia	243		243	1 210	1.020	
Canada	_ 101		101	1,210	1,030	507
China					592	
Dominican Republic				265		
Finland					70	
France					730	
Germany					3,990	
Hong Kong					2,120	
India	_ 14,500		14,500			
Japan	-				10,700	
Korea, Republic of					407	
Mexico	1,060	1,310	2,370	44	865	21,800
Netherlands				23	1,630	
Singapore	- <del></del>			67	160	
Sweden					1,660	
Switzerland		1,120	1,120			
Taiwan				1,710	978	
Thailand				672		
United Kingdom	_ <del></del>			850	316	
Other	<u> </u>			56	44	46
Total	15,900	2,420	18,400	4,900	25,300	22,400
Year to date	478,000	59,300	537,000	68,300	286,000	53,300

<sup>1/</sup> Data are rounded to three significant digits; may not add to totals shown.
2/ All or part of these data have been referred to the Bureau of the Census for verification.

 ${\bf TABLE~5} \\ {\bf U.S.~IMPORTS~AND~EXPORTS~OF~SILVER,~RAW,~SEMIMANUFACTURED,~AND~WASTE~AND~SCRAP~} 1/$ 

(Kilograms of silver content, unless otherwise specified)

Period and country	Silver ores and concentrates	Base metal ores and concentrates	Ash and residues	Total	Semimanu- factured form 2/3/ (gross weight)	Waste and scrap (gross weight)
Imports for consumption:						
1998	181,000	14,200	47,200	243,000	181,000	1,800,000
1999:		,	.,	-,	,,,,,,	,,
September	- 		5,850	5,850	4,980	151,000
October	63		4,650	4,710	25,900	100,000
November:	_		,,,,	, , ,		
Australia	- 		127	127		
Canada	- 80		1,700	1,780	26,200	44,700
China					771	
Costa Rica	- 					8,950
Dominican Republic	- 					569
Germany	-				924	239
Korea, Republic of					65	43
Malaysia	_					8,570
Mexico	=		6,990	6,990	1,490	54
Poland			0,990	0,990	80	(4/)
United Kingdom			972	972	502	250
Other		<del></del>	912	912	46	108
Total	80		9,790	9,870	30,100	63,500
Year to date	10,700		*	*	,	
	_ 10,700	2,750	96,500	110,000	130,000	1,620,000
Exports: 1998	- 6540			( 5 10	154,000	1.000.000
	6,540			6,540	154,000	1,060,000
1999:	-			606	10.500	05 100
September	696			696	10,500	95,100
October	16,400			16,400	10,900	110,000
November:	-					2.720
Belgium					560	3,720
Brazil					52	165
Cambodia						91
Canada					1,710	44,500
China						16,300
Cote d'Ivoire						50
Germany					114	23,100
Hong Kong					172	110
Italy					383	103
Japan					353	2,310
Mexico					701	
Peru						56
Philippines					52	
Singapore					336	
Spain	_				1,320	
Sweden						3,300
Taiwan					1,610	294
United Kingdom	- 				164	4,220
Other	- 44			44	165	2
Total	44			44	7,690	98,300
Year to date	70,800			70,800	113,000	1,210,000

<sup>1/</sup> Data are rounded to three significant digits; may not add to totals shown.

<sup>2/</sup> Containing 99.5% or more by weight of silver. Imports only.

<sup>3/</sup> Semimanufactured (including silver plated with gold or platinum) forms of silver.

<sup>4/</sup> Less than 1/2 unit.

TABLE 6
U.S. IMPORTS OF PLATINUM-GROUP METALS 1/

(Kilograms of metal content, unless otherwise specified)

	Platinum		Other		Platinum							
	grain and	Platinum	unwrought	Platinum,	waste and	Platinum	Unwrought	Palladium,		Unwrought	Unwrought	
Period and country	nuggets	sponge	platinum	other	scrap	coins	palladium	other	Iridium 2/	osmium	ruthenium	Rhodium 3/
Imports for consumption:												
1998	2,670	72,700	10,200	11,200	3,580	451	160,000	16,300	1,950	71	8,880	13,400
1999:												
September	1,260	10,400	826	535	399	4	11,200	2,040	389		1,650	754
October	155	9,940	170	566	91	28	12,900	1,510	75		778	617
November:												
Argentina					4							
Australia	(4/)			106		2 5/						
Belgium		71	78	11			661					93
Brazil					(4/)							
Canada	1			128	22	5	356	5	1			
Chile					3							
China							80	30				10
Colombia	3		36									
Costa Rica					25							
France					22				10		32	
Germany	68	103	46	188			247	247	26		62	10
Hong Kong					22							
Ireland	21		30					23				2
Israel			29									
Italy	10	38					115	1				
Japan	18	(4/)		17	779		483				(4/)	15
Mexico			6		12							
Netherlands				2								
Norway		31					78					
Peru			2					25				
Russia	2,000		5				9,450					
Singapore				63								
South Africa	62	5,190 5/		6			1,260	66	11		1,200	406
Spain				9								
Switzerland			21	139			47	170				
Taiwan			(4/)									
Thailand		3										
United Kingdom		78		36	15,100		1,400		31 5/		146	3 5/
Total	2,190	5,510	251	705	16,000	7	14,200	566	78		1,440 5/	539
Year to date	5,960	73,300	5,600	15,500	20,300	167	147,000	21,200	2,080	23	10,200	9,960

<sup>1/</sup> Data are rounded to three significant digits; may not add to totals shown.

<sup>2/</sup> Unwrought and other forms of iridium.

<sup>3/</sup> Unwrought and other forms of rhodium.

<sup>4/</sup> Less than 1/2 unit.

<sup>5/</sup> All or part of these data have been referred to the Bureau of the Census for verification.

# $\label{eq:table 7} \text{U.S. EXPORTS OF PLATINUM GROUP METALS } 1/$

(Kilograms of metal content, unless otherwise specified)

Period and country  Exports: 1998 1999: September October	Palladium 2/ 36,700	Platinum 2/ 14,300	scrap	ruthenium 2/3/	Rhodium 2/
1998 1999: September	•	14 300			
1999: September	•		6,570	905	811
September		11,500	0,570	703	011
	2,660	1,170	781	18	5
October	6,180	1,140	1,250	121	19
November:		-,	-,		
Australia	1,090	2			
Belgium	12	7	2		
Brazil	41	2			
Canada	227	139	32	28	
China	521	2		(4/)	
Cyprus	2				
Denmark	1	5	2		
Finland		1			
France	4	362			
Germany	139	493	46		1
Hong Kong	285	4		1	(4/)
Iceland	1				
India	6	1			(4/)
Ireland		9		(4/)	
Israel	265	3			
Italy	23	6			
Japan	1,310	187	8		6
Korea, Republic of	50			1	
Kuwait	(4/)				
Lebanon					(4/)
Luxembourg	1				
Malaysia	. 5	1			
Mexico	1	3			(4/)
Netherlands	83	7	2		
New Zealand	2	1			
Peru	<del></del>	1			
Philippines	. 10	4	(4/)		
Romania	<del></del>	1			
Singapore	. 4				
Spain	. 41				
Sweden	. 1	5	5		
Switzerland	. 14	149			
Taiwan	1,350	1			
Thailand	. 11				
Turkey	. 1				
United Arab Emirates	. 1				
United Kingdom	253	59	594	100	(4/)
Total Year to date	5,760 40,600 5/	1,450 16,900	692 7,370	130 811	8 99

<sup>1/</sup> Data are rounded to three significant digits; may not add to totals shown.

 $<sup>2/\</sup> Unwrought$  and other forms.

<sup>3/</sup> Gross weight.

<sup>4/</sup> Less than 1/2 unit.

 $<sup>5/\,</sup>All$  or part of these data have been referred to the Bureau of the Census for verification.